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Examiner

Haghighatian, Mina

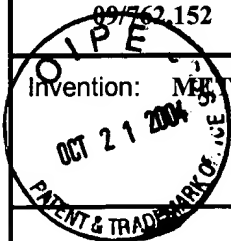
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Group Art Unit

1616

Invention: METHOD AND APPARATUS FOR TREATMENT OF RESPIRATORY INFECTIONS BY NITRIC OXIDE



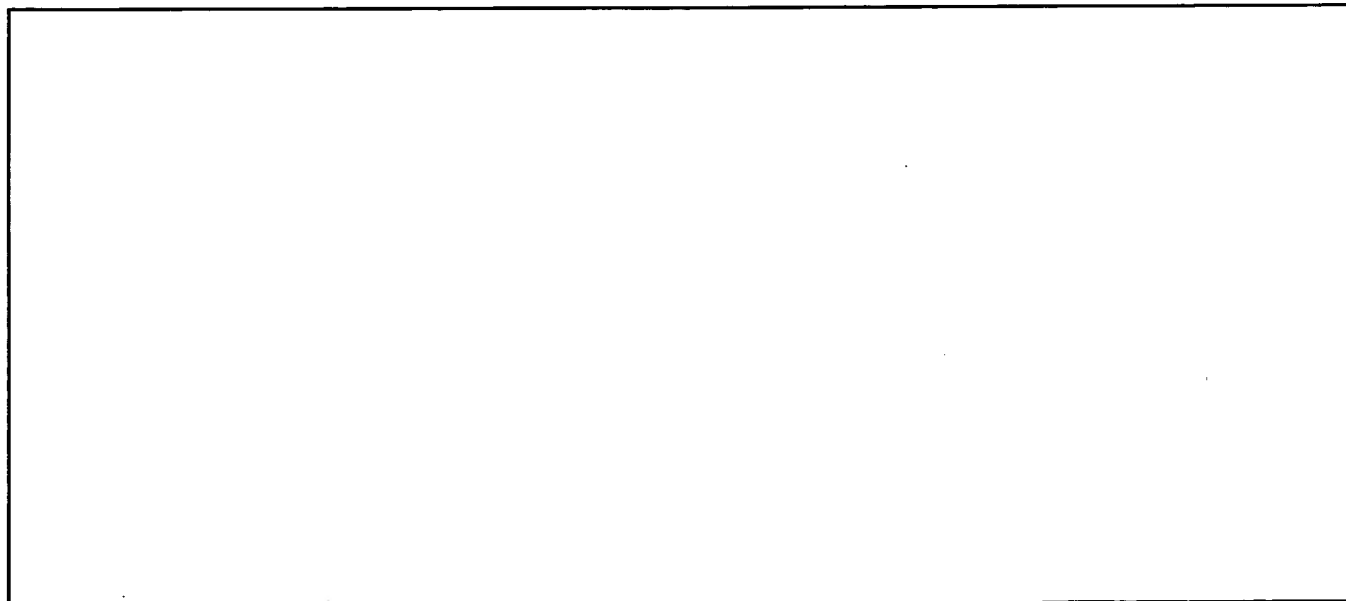
I hereby certify that this DECLARATION OF DR. NEIL MACINTYRE, M.D., PURSUANT TO 37 C.F.R. 1.132
(Identify type of correspondence)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Chris C. Miller

Serial No.: 09/762,152

Filed: February 1, 2001

**For: METHOD AND APPARATUS FOR
TREATMENT OF RESPIRATORY
INFECTIONS BY NITRIC OXIDE
INHALATION**

Group Art Unit: 1616

Examiner: Haghighatian, Mina

**DECLARATION OF DR. NEIL MACINTYRE, M.D., PURSUANT TO
37 C.F.R. § 1.132**

**Mail Stop Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

1. I, Dr. Neil MacIntyre, M.D., have been asked to provide this declaration in connection with the patent application captioned above, which relates to the use of inhaled nitric oxide gas as an anti-infective.

2. A copy of my curriculum vitae is attached as Exhibit 1 to this declaration.

By way of summary, I am presently the Chief of Clinical Services in the Division of Pulmonary and Critical Care Medicine at the Duke University Medical Center. Since 1981, I have also served as the Medical Director of Respiratory Care Services, the Pulmonary Function Laboratory, and the Pulmonary Rehabilitation Program at Duke. I have served on the editorial boards of such journals as Respiratory Care, Critical Care Medicine, Health Devices, and the Journal of Cardiopulmonary Rehabilitation. I have also authored or co-authored many publications in the field of respiratory care, as

reflected in my CV. I am highly experienced in the use of therapeutic and ventilatory *gases* in respiratory care, and have written broadly in this field. In addition, as described in more detail below, I have written a number of articles specifically relating to the use of *aerosols* to deliver therapeutic compounds to the respiratory tract.

3. I have been asked as an expert in the fields of Respiratory Care and Pulmonary Diseases to review the patent application captioned above, and its claims, in the light of the prior art publication No. WO 95/09612 by S. Green et al (“Green”). I have also reviewed the Green reference, and the comments of the U.S. Patent Examiner as expressed in the USPTO Office Action mailed April 16, 2004. I find that I disagree with the USPTO examiner in rejecting the patent application claims based on Green, or based on the combination of Green and US Patent No. 5,558,083 by Bathe et al (“Bathe”). In summary, I do not believe that 1) Green disclosed a method of delivering nitric oxide gas by inhalation to kill or inhibit the proliferation of microorganisms in the respiratory tract or that 2) One ordinarily skilled in the art would have found it to be obvious to take the different approach disclosed by Green and change it so as to deliver inhaled nitric oxide gas directly by inhalation to kill or inhibit such microorganisms or to suppress a respiratory infection associated with the microorganisms. I base my comments on the following facts:

4. Throughout the Green reference, the authors describe the administration of nitric oxide “generators” or “releasing compounds” that are intended to generate or release nitric oxide. By definition, a nitric oxide releasing “compound” or “generator” implies the presence of at least two chemical entities compounded together that are required to produce the nitric oxide. Likewise, in all the examples given in the Green

reference, the nitric oxide generator that is administered is always in the form of some non-gaseous precursor compound – specifically a “nitric oxide/nucleophile” adduct that contains some material or molecular portion other than molecular nitric oxide – that is intended, eventually, to react or otherwise release nitric oxide in an aqueous solution. For example, at pages 15-20, Green describes that the nitric oxide/nucleophile adduct can be bound to a polymer material, and at pages 28-30 Green describes the use of liposomes to encapsulate the nitric oxide/nucleophile adduct. Table 1 of Green at page 27 lists the preferred nitric oxide/nucleophile adducts, all of which are themselves large molecules that cannot be administered in gaseous form. Nowhere does Green describe the direct inhaled delivery of nitric oxide gas in the pure molecular form, so as to result in exposure of nitric oxide to microorganisms within the respiratory tract.

5. In fact, the Green reference directly teaches away from the approach of delivering nitric oxide gas directly through inhalation for killing or inhibiting microorganisms in the respiratory tract. For example, the authors state that the use of a nitric oxide releasing compound in treating animals, particularly humans, “circumvents the disadvantage of the use of pure nitric oxide, aqueous solutions of nitric oxide, and compounds which release nitric oxide but require undesirable activation mechanisms” (page 21, line 33 to page 22, line 3). According to Green, the described nitric oxide releasing materials are “capable of specifically targeting the delivery of nitric oxide generating compounds, and of modulating the rate of generation of nitric oxide” (page 22, lines 3-7). These features that Green describes for these nitric oxide generating materials are not characteristics of inhaled nitric oxide gas.

6. In addition, Green states that, “Nitric oxide in its pure form, however, is a highly reactive gas having limited solubility in aqueous media (WHO Task Group on Environmental Health Criteria for Oxides of Nitrogen, Oxides of Nitrogen, Environmental Health Criteria 4 (World Health Organization: Geneva, 1977). Nitric oxide, therefore, is difficult to introduce reliably into most biological systems without premature decomposition” (page 4, lines 12-18). These statements indicate that inhalation of nitric oxide gas into the airway of a human would be an unreliable manner in which to deliver effective levels of nitric oxide into the liquid lining of the lungs or into the mucus, both of which could contain respiratory pathogens. Thus, one skilled in the art would have found no suggestion or motivation in the information disclosed by Green to deliver molecular nitric oxide in its gaseous form to treat infections, even though the methods of delivering inhaled nitric oxide gas had been disclosed in other contexts by others.

7. Green refers to quite a number of techniques for delivering the described nitric oxide releasing compounds, including polymer materials for use with implants or patches (page 15, line 1-5), targeting with antibodies or site-specific peptides or oligonucleotides (page 16, lines 19-27), vesicle-encapsulated nitric oxide generators (page 20, lines 17-26), oral formulations (page 22, line 24 to page 23, line 6), injectable forms (page 23, lines 14-28), etc. None of these involve application, let alone inhalation, of nitric oxide gas. Rather, they all involve application of some compound or material that only indirectly releases or generates molecular nitric oxide.

8. As the Examiner has pointed out, Green also refers to administration of the nitric oxide releasing compound using “aerosol” formulations that include the

releasing compound (page 23, lines 7-13; page 29, lines 20-22). Once again, these “aerosol” formulations do not involve inhalation of gaseous nitric oxide, but rather only topical application, within the lungs, of some non-gaseous compound or material that only indirectly releases or generates molecular nitric oxide. Furthermore, the described use of aerosols to administer a non-gaseous active agent is fundamentally different from the claimed inhaled administration of gaseous nitric oxide.

9. In this regard, I have worked extensively in clinical applications with aerosol form therapeutic compositions, and have authored or co-authored a number of publications in this field. Examples of my work in the field of aerosols include the following:

1. Chairman, American Respiratory Care Foundation. Aerosol Consensus Conference, Cancun MX, 1990

2. Chairman, American Respiratory Care Foundation. Aerosol Consensus Conference II. Bermuda, 1999

3. MacIntyre NR, Silver RM, Miller CW, Schuler F, Coleman RE. Aerosol delivery in intubated, mechanically ventilated patients. Crit. Care Med. 1985; 13:81-84.

4. Weg JG and the Exosurf ARDS study group (NR MacIntyre, member). Safety and potential efficacy of an aerosolized surfactant in human sepsis induced ARDS. JAMA 1994; 272:1433-1438.

5. Anzvueto A and the Exosurf Acute Respiratory Distress Syndrome Sepsis Study Group (NR MacIntyre member). Aerosolized surfactant in adults with sepsis induced acute respiratory distress syndrome. New Eng J. Med. 1996; 334:1417-1421.

6. MacIntyre, NR. Aerosolized medications for altering lung surface active properties. Resp Care 2000; 45: 676-83.

7. MacIntyre, NR. Intratracheal catheters as drug delivery systems. Resp Care 2001; 46: 193-7.

8. MacIntyre NR. Aerosol delivery through an artificial airway. Respiratory Care. 2002; 47:1279-88.

9. MacIntyre, NR. Intra-tracheal aerosol delivery in intubated patients. in Vincent, JL (ed). Yearbook of Intensive Care and Emergency Medicine. Springer, Berlin, 2001.

10. Rinaldo S, MacIntyre NR. Continuous nebulization of albuterol sulfate for patients experiencing acute airway obstruction. Resp. Care 1992; 37:1370.

11. MacIntyre NR, Coleman RE, Schuller FS, Zaccardelli D, Pattishall E. Efficiency of the delivery of aerosolized artificial surfactant to intubated patients with ARDS. Am. Rev. Resp. Dis. 1994; 149:A125.

12. MacIntyre NR, Baran G, Schuller F, Day S. A small diameter multilumen catheter for intra - airway generation of therapeutic aerosols. Am. J. Resp. Crit. Care Med. 1996; 154:A.

13. MacIntyre NR, Baran GT, Schuller F, McConnell R. Aerosol deposition during high frequency oscillatory ventilation using an aerosol generating catheter. Eur. Resp. Soc. 1997;A.

10. One central point to understand about the aerosol administration of a non-gaseous compound as described by Green is that many pathogenic microorganisms respond to cytotoxic challenges by mutation into more resistant pathogens. Nitric oxide, because of its cytotoxic capabilities, has been shown to cause phenotype changes in some microorganisms due to nitrosative stress. This is of particular importance if the dose applied to the microorganisms is insufficient to eradicate them, as I believe would be expected to be the case if an aerosol, non-gaseous approach were used as described by Green.

11. As is well known to those skilled in the art of aerosol delivery, only a small fraction of aerosolized solutions actually get into the lungs. Even with the best techniques, standard aerosolization devices (nebulizers) with appropriate mouthpiece deliver only about 5.0-20.0% of their material into the lungs, and the remainder is wasted in the mouth or exhaled back out into the environment. Not only is the amount limited,

but the amount delivered varies considerably by the selection of the device used, so that the dose delivered to the site of the pathogens will also vary depending on the device selection, and on the particular skills of the patient in using that device.

12. Furthermore, aerosol delivery to the lungs has been frequently discussed in the literature, and it is well established that aerosol delivery does not achieve uniform deposition throughout the lungs. Not only is the uniformity of the deposition a function of the particle size produced by the aerosolization device, factors such as the physical characteristics of the material (hygroscopic properties, particle charge, viscosity, etc.), the speed of inhalation and the degree of airway disease will affect how much drug will get to any single location. Thus, short of a quantitative research study of each device and each patient, it would be difficult or impossible to determine how much of the active agent of a particular aerosol formulation is being delivered to the lungs, and to what part of the lungs.

13. With the aerosol approach described in Green, it is highly unlikely that an effective amount of the inhaled non-gaseous particles in the dose would actually make contact with the microorganism. I believe that there is a significant potential that the molecule will never reach more than 20 percent of the lung. The wide variation in concentration throughout the lung would mean that large sections of the lung would be overdosed while other sections would be under-treated and perhaps cause pathogen mutagenicity.

14. The approach by Miller in the present patent application offers significant advantages over that disclosed by Green. First, inhaled gases breathed continuously reach a steady state condition, usually within 3-7 minutes, whereby all surfaces of the

lungs that are in communication with the airways would be exposed to a uniform concentration of the drug. This would provide a uniform drug delivery to all locations and therefore expose all pathogens to the desired target nitric oxide dose.

15. Second, gas concentration selection can finely control the dose and duration of effect. Pure molecular nitric oxide gas diluted appropriately in air or in another ventilatory gas has an effect that lasts less than 6 seconds so that to change or stop the dose, it requires no other actions other than setting a different inspired concentration or ceasing delivery of the drug. This is not the situation with the aerosol methodology described by Green, where non-gaseous nitric oxide releasing particles would be deposited on relatively undefined portions of the lungs, where release of nitric oxide would then occur at some rate and potency that depends on the characteristics of the administered nitric oxide releasing formulation and the nature of the application site (page 24, line 21 to page 25, line 15).

16. Further in this regard, Green discloses a method of having the patient inhale a second “scavenger” compound to “counteract the inhibitory effect of the compound capable of releasing nitric oxide” (page 21, lines 17-26). To accomplish this, however, Green would need to know how much drug was delivered (as I previously stated, this would be unable to be determined by most means other than in a research facility) and then another drug would have to be delivered to the exact site of the original deposition to scavenge the nitric oxide produced by the generating compound. It would be difficult or impossible to assure that both the nitric oxide generating drug and the deactivating drug would have the same characteristics, or that the patient would inhale at the same speed or that the device for producing the aerosol would make both materials in

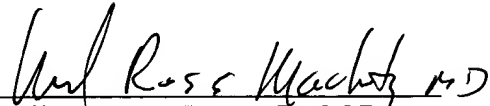
the same exact range of particle size. In contrast, because of the relatively instantaneous effects of inhaled gaseous nitric oxide, and the ability to cease (and resume) administration quickly and efficiently, the approach claimed in the present application does not suffer from the drawbacks of the non-gaseous aerosol approach of Green.

17. In conclusion, I believe that the use of inhaled gaseous nitric oxide as claimed in the present application is clearly superior to the non-gaseous, aerosol approach describe in the Green reference. In addition, I do not believe that person of ordinary skill in the art as of 1998 would have found it obvious to take what is disclosed by Green and, even with the knowledge of how to deliver pure molecular nitric oxide gas to the lungs (as described for example by Bathe), use inhaled nitric oxide gas to treat pulmonary infections. This statement stands particularly strong in light of the cautions against the use of nitric oxide gas presented by Green, which were unrelated to the ability to inhale nitric oxide gas but rather related to Green's view of the lack of potential effectiveness of the gaseous form of molecular NO.

18. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001

of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Executed this 12 day of October, 2004, at Durham, NC, U.S.A.


Neil Ross MacIntyre, Jr., M.D.

CURRICULUM VITAE

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BIRTH DATE/PLACE: November 21, 1946, San Diego, California

FAMILY: Suzanne (wife), Catherine, Neil III, Douglas, Charles, Elizabeth, Stephen
(children)

EDUCATION:	University of San Francisco	Bachelor of Science
	San Francisco, California	1968 (cum laude)
	Cornell University Medical College	Doctor of Medicine
	New York, New York	1972

POST GRADUATE TRAINING: Intern, Junior Resident, Senior Resident (Medicine)
Cornell University Medical Center - New York Hospital
New York, New York
1972-1975

Fellow (Pulmonary Diseases)
University of California, San Francisco
San Francisco, California
1978-1981

MEDICAL CENTER POSITIONS:

Medical Director of Respiratory Care Services, Pulmonary Function
Laboratory, and Pulmonary Rehabilitation Program
Duke University Medical Center
1981-present

Interim Director of Respiratory Care Services
Duke University Medical Center
1997-2001

ACADEMIC POSITIONS:

Assistant Professor of Medicine
Duke University
1981-1989

Associate Professor of Medicine (with Tenure)
Duke University Medical Center
1989-1995

Professor of Medicine (with Tenure)
Duke University Medical Center
1995-present

Acting Chief
Division of Pulmonary and Critical Care Medicine
Duke University Medical Center
1999-2000

Chief of Clinical Services
Division of Pulmonary and Critical Care Medicine
Duke University Medical Center
2000-present

MILITARY: Research Medical Officer & Instructor in Aviation Medicine
Aviation Medicine (Cardiopulmonary) Division
Naval Aerospace Medical Research Laboratory
Pensacola, Florida 32508
1975-1978*

*Included six month course in Aviation Medicine with designation as a Naval Flight Surgeon in 1976.

MEMBERSHIPS/OFFICES HELD:

American College of Chest Physicians
- Fellow 1982 - present
- Program Committee 2000-present
American Physiologic Society
American Thoracic Society
- President, North Carolina Chapter 1989
- Member, Laboratory Standards Committee 1992-present
- Member, Program Committee 1997
American Association for Respiratory Care
- Fellow 1996 - present

- Board of Medical Advisors 1986-1991, Chairman 1990
- American Lung Association
 - President, Research Triangle Region 1988
 - Chairman, Medical Education and Research Committee 1990-present
 - Board of Directors, North Carolina Affiliate 1995 - present
 - President, North Carolina Affiliate 1999-2001
- American Heart Association
 - Chairman, Emergency Cardiac Care Committee 1989-90
 - Advanced Life Support Affiliate Faculty
- Society for Critical Care Medicine
- National Association of Medical Directors of Respiratory Care
 - Board of Directors 1991-present
 - Secretary 1995-1996, Treasurer 1997-1999, President-elect 1999-2001
 - President 2001- 2002
- Allergy and Asthma Network
 - Board of Directors 1996 –present
- American Association of Cardiovascular and Pulmonary Rehabilitation
 - Fellow 1999 - present
 - Board of Directors 1999-2001

BOARD CERTIFICATION: Internal Medicine 1975
Pulmonary Disease 1980
Critical Care Medicine 1989,1999

MEDICAL LICENSE: North Carolina 24929

AWARDS: Alpha Omega Alpha, 1972
Surgeon General's Award (Aviation Medicine), 1976
American Heart Association (West Florida) Silver Service Medal, 1978
Honorary Member, North Carolina Society for Respiratory Care, 1992
Michael Newhouse MD lecture, McMaster University, Hamilton, Ontario, 1992
Listed in "Best Doctors in America"
Listed in "Who's Who in the South and Southwest"
Golden Tree of Life Award - NY Society for Respiratory Care, 1995
Honorary Member - American Association for Respiratory Care, 1995
Gerald Shapiro Award - New Jersey Society for Respiratory Care, 1996
Phillip Kittredge Honors Lecture - American Association for Respiratory Care, 1997
Honorary Member, Mexican Association of Critical Care Medicine, 1998
Honorary Member, Lambda Beta Society, 1999
Presidents Award, Natl Assoc of Medical Directors of Resp Care, 2000
Roger Bone Memorial Lecture, Amer College of Chest Physicians, 2000
Physician of the Year (NC Society of Resp Care), 2000
Leadership Award, NC Thoracic Society, 2000

Society of Critical Care Medicine Presidential Citation, 2000
Forrest Bird Scientific Achievement Award - American Association for
Respiratory Care, 2001
Kenneth Moser Memorial Lecture, Univ Calif SD, 2002
Listed in "Best Doctors 2004" – Business North Carolina
Certificate of Appreciation – Duke University PA Program – 2004
Presidents Award – North Carolina Society of Cardiovascular and Pulmonary
Rehabilitation - 2004

EDITORSHIPS:

Editorial Board, Respiratory Care, 1986- (Chairman 1990-1992)
Associate Editor, Respiratory Care, 2000-
Co-editor in Chief, Problems in Respiratory Care, JB Lippincott, Philadelphia,
PA, 1988-1991
Medical Editor, Arkos, the Journal of Mechanical Ventilation, Bear Medical
Systems, Riverside, CA, 1989
Editorial Board, Health Devices, 1992 -
Editorial Board, Critical Care Medicine, 1992 -
Scientific Editor, Critical Care Medicine, 1997 -
Co-editor in Chief, Respiratory Care Clinics of North America, WB Saunders,
Philadelphia, PA, 1994 –
Editorial Board, Journal of Cardiopulmonary Rehabilitation, 2000-
Editorial Board, ACCP SEEK, 2002 –

PATENTS: US Patent 5438982. Endotracheal tube adapted for aerosol generation at distal
end thereof, August 8, 1995

OTHER PROFESSIONAL ACTIVITIES:

Trustee, American Respiratory Care Foundation, 1988- (Vice Chairman 1990-)
Member, NIH Special Study Section 8 (SBIR, Cardiopulmonary).
Member, Steering Committee, NIH ARDS Network 1995 –
Member, Steering Committee, NIH National Emphysema Treatment Trial, 1998
2004
Member, North Carolina Board for Respiratory Care 2001-2003

NATIONAL/INTERNATIONAL C.M.E. COURSE DIRECTORSHIPS AND CONSENSUS CONFERENCE CHAIRS:

American Respiratory Care Foundation, Aerosol Consensus Conference, Cancun MX, 1990
Nagoya University Ventilator Design Conference, Nagoya, Japan, 1990
American Respiratory Care Foundation. Essentials of a Mechanical Ventilator Consensus
Conference, Ixtapa MX, 1992

American Respiratory Care Foundation. Innovations in Mechanical Ventilation Consensus Conference, Ixtapa MX, 1995
American Respiratory Care Foundation. Non-invasive Positive Pressure Ventilation Consensus Conference, Vail CO, 1997
Duke University – American College of Chest Physicians. Mechanical Ventilation Course. 1997 (San Diego CA), 1998 Baltimore MD, 1999 (Phoenix AZ), 2000 (Buenos Aires Argentina and San Francisco CA), 2001 (Philadelphia), 2002 (San Diego)
Duke University – American College of Chest Physicians. Pulmonary Rehabilitation Course. 1998 (Durham NC), 1999 (Orlando FL), 2000 (San Diego CA)
American Respiratory Care Foundation. Aerosol Consensus Conference II. Bermuda, 1999
American College of Chest Physicians. Weaning Mechanical Ventilation - Evidence Based Panel 1999-2001.
American Respiratory Care Foundation. Tracheal Gas Insufflation. Dallas TX, 2000.
George Washington University - Center for Biomedical Communication. Critical Care Medicine Annual Review and Update. Washington DC, 2000-2004
Center for Biomedical Communication. Pulmonary Diseases for the Non-pulmonologist. New York, NY, 2001
American Thoracic Society. ATS-ERS Panel for DLCO Standardization. 2001-2004.
American College of Chest Physicians. Emerging Strategies for COPD. Orlando FL, 2001.
American Respiratory Care Foundation. Emerging Nebulizer Technologies, Montreal, 2002.
NAMDR. Prolonged Mechanical Ventilation, Baltimore, 2004
American Respiratory Care Foundation. MDIs/DPIs – State of the Art, Los Cabos, MX, 2005.

PUBLICATIONS:

Original Scientific Articles (Peer Review)

MacIntyre, NR, Oberman A, Harlan WR, Mitchell RE, Graybiel A, Johnson E. Longevity in military pilots: 37-year follow-up of the U.S. Navy's "1000 Aviators". Aviat. Space and Environ. Med. 1978; 49:1120-1122.

MacIntyre NR, Mitchell RE, Oberman A, Harlan WR, Graybiel A. Long term follow-up of lung volume measurements in initially healthy young aviators. Aviat. Space and Environ. Med. 1981; 52:1-5.

MacIntyre NR, Kunkler JR, Mitchell RE, Oberman A, Harlan WR, Graybiel A. Eight year follow-up of exercise electrocardiogram in healthy middle-aged men. Aviat. Space and Environ. Med. 1981; 52:256-259.

Stokes DL, MacIntyre NR, Nadel JA. Non-linear increases in diffusing capacity during exercise in the sitting and supine position. J. Appl. Physiol. 1981; 51:858-863.

MacIntyre NR, Nadel JA. Regional diffusing capacity in normal lungs during a slow exhalation. J. Appl. Physiol. 1982; 52:1487-1492.

MacIntyre NR, Silver RM, Anderson HR, Schuler F, Coleman RE. Pulmonary function in mechanically-ventilated patients during 24-hour use of a hygroscopic condenser humidifier. Chest 1983; 84:560-564.

Harlan WR, Cowie CC, Oberman A, Mitchell RE, MacIntyre NR. Prediction of subsequent ischemic heart disease using serial resting electrocardiograms. Am. J. Epidemiol. 1984; 119:208-217.

Lawlor BR, Anderson HR, MacIntyre NR. Accuracy and precision of arterial blood gas measurements from the AVL 940 microsample analyzer. Resp. Care 1984; 29:1006-1008.

MacIntyre NR, Silver RM, Miller CW, Schuler F, Coleman RE. Aerosol delivery in intubated, mechanically ventilated patients. Crit. Care Med. 1985; 13:81-84.

MacIntyre NR, Leatherman NE, Deitz JL, Wagoner R, Friedman M. Distribution and uptake of helium, carbon monoxide, and acetylene in the lungs during high frequency oscillatory ventilation. Resp. Physiol. 1986; 63:201-212.

MacIntyre NR. Respiratory function during pressure support ventilation. Chest 1986; 89:677-683.

MacIntyre NR, Follett JV, Deitz JL, Lawlor BR. Jet ventilation at 100 breaths per minute in adult respiratory failure. Am. Rev. Resp. Dis. 1986; 134:897-901.

MacIntyre NR, Ramage JE, Follett JV. Jet ventilation in support of fiberoptic bronchoscopy. Crit. Care Med. 1987; 15:303-307.

Ramage JE, Coleman RE, MacIntyre NR. Rest and exercise cardiac output and diffusing capacity assessed by a single slow exhalation of methane, acetylene, and carbon monoxide. Chest 1987; 92:44-50.

Sugarman J, Newman K, MacIntyre NR. Tension pneumothorax without apparent tracheal deviation. Resp. Care 1987; 32:1035-1038.

MacIntyre NR, Leatherman NE. Mechanical loads on the ventilatory muscles: a theoretical analysis. Am. Rev. Resp. Dis. 1989; 139:968-973.

Bergin CJ, Bell DY, Coblenz CL, Chiles C, Gamsu G, MacIntyre N, Coleman RE, Putman CE. CT of sarcoidosis: correlation of pulmonary parenchymal patterns and pulmonary function tests. Radiology 1989; 171:619-624.

MacIntyre NR, Leatherman NE. Ventilatory muscle loads and the frequency-tidal volume pattern during inspiratory pressure-assisted (pressure-supported) ventilation. Am. Rev. Resp. Dis. 1990; 141:327-331.

Gray JE, MacIntyre NR, Kronenberger WG. The effects of bolus normal-saline instillation in conjunction with endotracheal suctioning. Resp. Care 1990; 35:785-790.

MacIntyre NR, Ho LI. Effects of initial flow rate and breath termination criteria on pressure support ventilation. Chest 1991; 99:134-138.

Banner MJ, Kirby RR, MacIntyre NR. Patient and ventilator work of breathing and ventilatory muscle loads at different levels of pressure support ventilation. Chest 1991; 100:531-533.

Emery CF, Leatherman NE, Burkner EJ, MacIntyre NR. Psychological outcomes of a pulmonary rehabilitation program. Chest 1991; 100:613-617.

Greenman RL, Schein RM, Martin MA, Wenzel RP, MacIntyre NR et al. A controlled clinical trial of E5 murine monoclonal IgM antibody to endotoxin in the treatment of gram negative sepsis. JAMA 1991; 266:1097-1102.

Huang YC, MacIntyre NR. Real time gas analysis improves the measurement of single breath diffusing capacity. Am. Rev. Resp. Dis. 1992; 146:946-950.

Day SL, Wooten L, MacIntyre NR. Rapid analysis of exhaled CO₂ to assess endotracheal tube placement. Resp. Care 1992; 37:1161- 1165.

Reihnsaus E, Innis M, MacIntyre N, Liggett SB. Mutations in gene encoding for the beta adrenergic receptor in normal and asthmatic subjects. Am. J. Resp. Cell Mol. Biol. 1993; 8:334-339.

Thalman JJ, Rinaldo-Gallo S, MacIntyre NR. Analysis of an endotracheal tube service provided by respiratory care practitioners. Resp. Care 1993; 38:469-473.

Huang YC, Helms MJ, MacIntyre NR. Normal values for single exhalation diffusing capacity and pulmonary capillary blood flow in sitting, supine positions and during mild exercise. Chest 1994; 105:501-508.

Emery CF, Hauck ER, MacIntyre NR, Leatherman NE. Psychological functioning among middle aged and older adult pulmonary patients in exercise rehabilitation. Phys. and Occ. Ther. in Ger. 1994; 12:13-26.

Roggli VL, Coin PG, MacIntyre NR, Bell DY. Asbestos content of bronchoalveolar lavage fluid: a comparison of light and scanning electron neuroscopic analysis. Acta Cytol 1994; 38:502-510.

MacIntyre NR, Gropper C, Westfall T. Combining pressure limiting and volume cycling features in an interactive mechanical breath. Crit. Care Med. 1994; 22:353-357.

Coleman RE, MacIntyre NR, Snyder G, Pattishall E, Zaccardelli D. Aerosol characteristics of Tc-DTPA and synthetic surfactant. Chest 1994; 105:1765-1769.

Weg JG and the Exosurf ARDS study group (NR MacIntyre, member). Safety and potential efficacy of an aerosolized surfactant in human sepsis induced ARDS. JAMA 1994; 272:1433-1438.

Fisher CJ and the rhIL-1ra Sepsis Syndrome Study Group (NR MacIntyre, member). Recombinant human Interleukin 1 receptor antagonist in the treatment of patients with sepsis syndrome. JAMA 1994; 271:1836-1843.

Chiang AS, Steinfeld AS, Gropper C, MacIntyre NR. Demand flow airway pressure release ventilation as a partial ventilatory support mode. Crit. Care Med. 1994; 22:1431-1437.

Armstrong BW, MacIntyre NR. Pressure controlled inverse ratio ventilation without air trapping. Crit. Care Med. 1995; 23:279-85.

Bone RC, Balk R, Fein AM, Perl T, Wenzel R, Reines D, Quenzer R, Iberti T, MacIntyre NR et al. A second large controlled clinical study of E5, a monoclonal antibody against endotoxin. Crit. Care Med. 1995; 23:994-1006.

Anzvueto A and the Exosurf Acute Respiratory Distress Syndrome Sepsis Study Group (NR MacIntyre member). Aerosolized surfactant in adults with sepsis induced acute respiratory distress syndrome. New Eng J. Med. 1996; 334:1417-1421.

MacIntyre NR, Lawlor B, Carstens D, Yetsko D. Accuracy and precision of a point of care blood gas analyzer incorporating optodes. Resp. Care 1996; 41:800-804.

MacIntyre NR, McConnell R, Cheng KC. Applied PEEP reduces the inspiratory load of intrinsic PEEP during pressure support. Chest 1997; 111:188-193.

MacIntyre NR, McConnell R, Cheng KC, Sane A. Patient-ventilator flow dys-synchrony: flow limited vs pressure limited breaths. Crit. Care Med. 1997; 25:1671-1677.

Emery CF, Schein RL, Hauck ER, MacIntyre NR. Psychological and cognitive outcomes of a randomized trial of exercise among patients with chronic obstructive lung disease. Health Psych., 1998; 17:232-240.

MacIntyre NR, Helms MA, Schmidt R, Wunderink RA, Fink M. Automated rotational therapy for the prevention of nosocomial pneumonia. Resp. Care 1999; 44:1447-1451.

National Emphysema Treatment Trial Steering Committee (MacIntyre, NR member). Rationale and design of the National Emphysema Treatment Trial. Chest 1999; 116: 1750-1761 and J Thor Cardiovasc Surg 1999; 118: 518-528.

Angus DC, Birmingham MC, Balk RA, Scannon PJ, Collins D, Kruse JA, Graham DR, Dedhia HV, Homann S, MacIntyre NR. E5 murine monoclonal antiendotoxin antibody in gram negative sepsis: a randomized controlled trial. JAMA 2000; 283: 1723-30.

NIH ARDS Network (MacIntyre, NR - Steering Committee member). Ventilation with lower tidal volumes as compared to traditional tidal volumes in acute lung injury and acute respiratory distress syndrome. New Engl J Med 2000; 342: 1301-8.

National Emphysema Treatment Trial Steering Committee (MacIntyre NR member). Subgroup at high risk for surgical mortality in patients receiving LVRS. New Engl J Med 2001;

Huang YC, O'Brien SR, MacIntyre NR. Intra-breath diffusing capacity of the lungs in healthy individuals at rest and at exercise. Chest 2002;122: 177-185.

EPO Critical Care Trials Group (MacIntyre NR, Steering Committee member). Efficacy of recombinant human erythropoietin in critically ill patients: a randomized controlled trial. JAMA. 2002; 288:2827-35.

Shapiro MJ, Gettinger A, Corwin HL, Napolitano L, Levy M, Abraham E, Fink MP, MacIntyre N, Pearl RG, Shabot MM. Anemia and blood transfusion in trauma patients admitted to the intensive care unit. J Trauma-Injury Infection & Critical Care. 2003; 55:269-73.

National Emphysema Treatment Trial Research Group (MacIntyre NR member). A randomized trial comparing lung-volume-reduction surgery with medical therapy for severe emphysema. New Engl J Med. 2003; 348:2059-73.

NIH ARDS Network (MacIntyre, NR - Steering Committee and Writing Committee member). Effects of recruitment maneuvers in patients with ALI/ARDS ventilated with high end expiratory pressure. Crit Care Med. 2003; 31: 2592-2597.

Emery CF, Shermer RL, Hauck E, Hsiao ET, MacIntyre NR. Cognitive and psychological outcomes of exercise in a one year followup study of patients with COPD. Health Psychology. 2003; 22:598-604.

National Emphysema Treatment Trial Research Group (MacIntyre NR member). Safety and efficacy of median sternotomy vs VATS for lung volume reduction surgery. J Thor Cardiovasc Surg. 2004; 127: 1350-60.

Corwin HL, Gettinger A, Pearl RG, Fink MP, Levy MM, Abraham E, MacIntyre NR, Shabot M, Duh, MS, Shapiro MJ. The CRIT study: anemia and blood transfusions in the critically ill – current clinical practice in the United States. Crit Care Med. 2004; 32: 39-52.

Plankeel J, McMullen B, MacIntyre NR. Exercise outcomes after pulmonary rehabilitation depend upon initial mechanisms of limitation in non-oxygen dependent COPD patients. Chest. 2004; (in press)

Levy, M, Abraham E, MacIntyre NR. A descriptive evaluation of transfusion practices in mechanically ventilated patients. Chest. 2004; (in press)

NIH ARDS Network (MacIntyre, NR - Steering Committee and Writing Committee member). A trial of

high versus low PEEP in patients with ALI/ARDS. New Engl J Med. 2004; 351: 327-336.

Original Scientific Articles (Invited manuscripts and/or symposium proceedings)

MacIntyre NR, Oberman A, Mitchell RE, Graybiel A. Long term pulmonary function patterns in the aviator: the U.S. Navy's "1000 Aviators" project, Proceedings of NATO Advisory Group for Aerospace Research and Development, No. 232, 1977.

MacIntyre NR. Bedside monitoring of ventilator effectiveness during high frequency ventilation. Crit. Care Mon. 1984; 4:11-21.

MacIntyre NR, Nagy RS. Pressure support ventilation: potential clinical applications. Problems in pulmonary disease. Goldman, AL (ed.), H.P. Publishing, New York, 1986.

MacIntyre NR. Pressure support ventilation: effects on ventilatory reflexes and ventilatory-muscle workloads. Resp. Care 1987; 32:447-457.

Marini JJ, MacIntyre NR, Kacmarek R, Tobin MJ, Roussos CS, Braun NMT, Make BJ. Recent innovations in mechanical ventilation. Am. Rev. Resp. Dis. 1987; 136:1043-1045.

MacIntyre NR. Weaning from mechanical ventilatory support: volume-assisting intermittent breaths versus pressure-assisting every breath. Resp. Care 1988; 33:121-125.

MacIntyre NR. Does PEEP affect the natural history of acute lung injury? Yes! Resp. Care 1988; 33:487-492.

MacIntyre NR. Diffusing capacity of the lung for carbon monoxide. Resp. Care 1989; 34:489-499.

MacIntyre NR. Pulmonary rehabilitation: Current status and future trends. Physical Ther. in Health Care 1989; 3:1-11.

Leatherman NE, MacIntyre NR. Pulmonary rehabilitation: Mechanisms of benefit. Physical Ther. in Health Care 1989; 3:11-30.

MacIntyre NR, Nishimura M, Usada Y, Hiroaki T, Takezawa J, Shimada Y. The Nagoya conference on system design and patient-ventilator interactions during pressure support ventilation. Chest 1990; 97:1463-1466.

MacIntyre NR. Respiratory monitoring without machinery. Resp. Care 1990; 35:546-556.

MacIntyre NR, Ho LI. Weaning mechanical ventilatory support. Anesth. Reports 1990; 3:211-215.

MacIntyre NR. Clinically available new strategies for mechanical ventilatory support. Chest 1993; 104:560-565.

MacIntyre NR. Mechanical approaches to prevent and treat nosocomial pneumonias. ACCP Symposium Highlights 1993; 39-40.

MacIntyre NR. Efficacy assessment criteria based on risk and cost. Resp. Care 1995; 40:968-970.

MacIntyre NR. Respiratory factors in weaning from mechanical ventilatory support. Resp. Care 1995; 40:244-248.

MacIntyre NR. Psychological factors in weaning from mechanical ventilatory support. Resp. Care 1995; 40:277-281.

MacIntyre NR. Controversies in mechanical ventilation. Contemp. Int. Med. 1995; 7:10-15.

MacIntyre NR. Minimizing Alveolar Stretch Injury during Mechanical Ventilation. Resp. Care 1996; 41:318-326.

Branson RD, MacIntyre NR. Dual-Control Modes of Mechanical Ventilation. Resp. Care 1996; 41:294-305.

MacIntyre NR. What is Tracheal Pressure Triggering?--Do We Need It? Resp. Care 1996; 41:524-528.

MacIntyre NR, Tobin MJ. Weaning from Mechanical Ventilation. Controversies in Critical Care 1996; 2:1-5.

Mishoe SC, MacIntyre NR. Expanding Professional Roles for Respiratory Care Practitioners. Resp. Care 1997; 42:71-91.

MacIntyre, NR. Mechanical ventilation - the next 50 years. Resp Care 1998; 43: 490-493.

MacIntyre, NR. Oxygen therapy and exercise response in lung disease. Resp Care 2000; 45: 194-203.

MacIntyre, NR. Aerosolized medications for altering lung surface active properties. Resp Care 2000; 45: 676-83.

MacIntyre, NR. Intratracheal catheters as drug delivery systems. Resp Care 2001; 46: 193-7.

MacIntyre NR. Setting the frequency tidal volume pattern. Resp Care 2002; 47: 266-274.

MacIntyre NR. Aerosol delivery through an artificial airway. Respiratory Care. 2002; 47:1279-88.

MacIntyre NR. Foss CM. Pulmonary function testing: coding and billing issues. Respiratory Care. 2003; 48:786-90.

MacIntyre NR. Evidence based ventilator weaning and discontinuation. Respir Care. 2004; 49: 830-6.

MacIntyre NR. COPD- emerging medical therapies. Respir Care. 2004; 49: 64-71.

MacIntyre NR. Respiratory system simulations and modelling. Respir Care. 2004; 49: 401-9.

Book Chapters and Reviews

MacIntyre NR. Sections on Pulmonary Diseases (author), Cardiology (co-author): U.S. Naval Flight Surgeon's Manual (2nd edition), BioTechnology Inc., McLean, Virginia, 1978.

Osgood CF, Watson MH, Slaughter MS, MacIntyre NR. Hemodynamic monitoring in respiratory care. Resp. Care 1984; 29:25-34.

MacIntyre NR. Sleep related respiratory dysfunction. Conn RB (ed.), Current Diagnosis 7 W.B. Saunders, Philadelphia, 1985.

MacIntyre NR. Mechanical ventilation. Marini J (ed.), Clinical Pulmonary Update Volume 1, Lesson 21, American College of Chest Physicians, Chicago, 1985.

MacIntyre NR. Pressure assisted inspiration: pressure support ventilation. Kacmarek RM (ed.), Current Respiratory Care Techniques and Therapy BC Decker 1987.

MacIntyre NR. New forms of mechanical ventilation in the adult. Clinics in Chest Med. 1988; 9:47-54.

MacIntyre NR. New modalities of ventilation: pressure support ventilation. Advances in Anesthesia 1989; 6:219-230, Yearbook Medical Publishers, Chicago.

Stock MC, MacIntyre NR. Weaning mechanical ventilatory support. Kirby RR, Banner MJ, Downs JB (ed.), Clinical Applications of Ventilatory Support Churchill, Livingstone, New York, 1989.

MacIntyre NR. New forms of mechanical ventilation. Marini J (ed.), Pulmonary and Critical Care Update Volume 4, Lesson 23, American College of Chest Physicians, Chicago, 1989.

MacIntyre NR. Graphical analysis of flow, pressure and volume during mechanical ventilation. Arkos, Bear Medical Systems, Riverside, CA, 1989; 1:16-25.

TenEyck LG, MacIntyre NR. Imposed work of breathing during mechanical ventilation. Arkos, Bear Medical Systems, Riverside, CA, 1989; 1:10-14.

MacIntyre NR. New modes of mechanical ventilation. SCCM State of the Art 1990. Society of Critical Care Medicine, Fullerton, CA, 1990.

MacIntyre NR. Pressure support ventilation. Banner M (ed.), Positive Pressure Ventilation,

Lippincott, Philadelphia, 1990.

MacIntyre NR. Graphical analysis of pressure, flow and volume to optimize mechanical ventilatory support. Wissing D, Conrad SA, George R (ed.), Critical Care for the Cardiopulmonary Practitioner. Appleton and Lange, Norwalk, CT, 1991.

MacIntyre NR. Pressure support ventilation. Grenvik A (ed.), New Forms of Mechanical Ventilation. Churchill Livingston, New York, 1991.

MacIntyre NR. Techniques of weaning mechanical ventilatory support. J. Crit. Illness 1991; 6:91-95

Sherman CR, Fernandez H, MacIntyre N, Brougher P. Virazole efficacy and safety. Resp. Care 1991; 36:1439-1441.

MacIntyre NR. Patient-ventilator interactions: Dys-synchrony and imposed loads. Prob. Resp. Care 1991; 4:36-43.

MacIntyre NR. Intrinsic PEEP. Prob. Resp. Care 1991; 4:44-51.

Day SL, MacIntyre NR. Ventilator alarm systems. Prob. Resp. Care 1991; 4:118-126.

Watson MH, MacIntyre NR. Ventilator malfunctions. Prob. Resp. Care 1991; 4:127-135.

ARCF-AARC Consensus Group (MacIntyre, NR - Chairman). Aerosol Consensus Statement 1991. Resp. Care 1991; 36:916-921. Chest 1991.

MacIntyre NR. Pressure support ventilation. Perel A and Stock MC (ed.), A Clinical Approach to Ventilatory Support Williams and Wilkins, Baltimore, 1992.

MacIntyre NR. Synchronous and dys-synchronous patient ventilator interactions. Vincent JL (ed), 1992 Yearbook of Intensive Care and Emergency Medicine. Springer-Verlag, Berlin, 1992.

MacIntyre NR, Day SL. Essentials for ventilator alarm systems. Resp. Care 1992; 37:1108-1112 .

MacIntyre NR. Oxygen transport from the environment to the pulmonary capillary. Blood Gas News 1992; 1:3-4.

ARCF-AARC Consensus Group (MacIntyre NR, Branson R - Co-Chairman). Essentials of a mechanical ventilator consensus statement - 1992. Resp. Care 1992; 37:998-1008.

Hazinski MF, Iberti TJ, MacIntyre NR, et al. Epidemiology, pathophysiology and clinical presentation of gram negative sepsis. Am. J. Crit. Care 1993; 2:224-237.

MacIntyre NR. Advances in mechanical ventilation. Bone RC and Petty T (ed). 1992 Yearbook of

Pulmonary Disease. Yearbook Medical Publishers, Chicago, 1993.

MacIntyre NR. Pressure support; coming of age. Seminars in Resp. Medicine 1993; 14:293-298.

Slutsky AS and the ACCP Mechanical Ventilation Consensus Group (NR MacIntyre, member). Mechanical Ventilation. Chest 104:1833-1859, 1993, and Resp. Care 1993; 38:1389-1422.

MacIntyre NR. High frequency ventilation. Tobin MJ (ed.). Principles and Practice of Mechanical Ventilation. McGraw-Hill, New York, 1994.

MacIntyre NR. Mechanical ventilation with inspiratory pressure support. Trauma Quarterly 1994; 11:31-38.

MacIntyre NR. Automated lateral rotational therapy in the intensive care unit. Care of the Critically Ill 1994; 10:210-213.

Sladen R, Stolp B, MacIntyre NR. Tracheal intubation and mechanical ventilation. Sabiston DC and Spencer FC (ed.) Surgery of the Chest (6th ed.). WB Saunders, Philadelphia, 1994.

MacIntyre NR, Gropper C. Respiratory Monitoring. Levine RL, Fromm RE, (ed.) Acute Care Monitoring. Mosby, Philadelphia, 1995.

MacIntyre NR. Surfactant treatment of adult lung disease. Seminars in Resp. Med 1995; 16:47-52.

American Thoracic Society Committee on Proficiency Standards for Clinical Pulmonary Function Laboratories (MacIntyre, NR - member). Standardization of spirometry - 1994 update. Am. J. Resp. Crit. Care Med. 1995; 152:1107-1136.

American Association for Respiratory Care Consensus Group (MacIntyre NR - co-chair). Assessing innovations in mechanical ventilatory support. Resp. Care 1995; 40:928-932.

MacIntyre NR. Recent Advances in Mechanical Ventilation. Bone RC, and Petty T (ed). 1995 Yearbook of Pulmonary Disease. Yearbook Medical Publishers, Chicago, 1995.

MacIntyre NR. Pressure support ventilation. Perel A, and Stack MC (ed). Handbook of Mechanical Ventilatory Support (2nd ed.). Williams and Wilkins, Baltimore, 1995.

MacIntyre NR. Controversies in Mechanical Ventilation. Contemporary Internal Medicine 1995; 7:10-15.

American Thoracic Society Committee on Proficiency Standards for Clinical Pulmonary Function Laboratories (MacIntyre NR, DLCO subcommittee chair). Standardization of DLCO - 1995 update. Am. J. Resp. Crit. Care Med. 1995; 152:2185-2198.

MacIntyre NR. Mechanical ventilatory support in asthma. Resp. Care Clinics of North America 1995; 1:333-344.

Crouch R, MacIntyre NR. Rehabilitation of the asthmatic patient. Resp. Care Clinics of North America 1995; 1:345-356.

MacIntyre NR. Mechanical Ventilation. Yearbook of Pulmonary Disease. Mosby, St. Louis, 1995.

National Association of Medical Directors Consensus Group (MacIntyre NR - member). Guidelines for the use of nebulizers in the home and at domiciliary sites. Chest 1996; 109:814-820.

MacIntyre NR. Mechanical Ventilation Strategies. Parrillo (ed.). Current Therapy in Critical Care Medicine. Mosby, St. Louis, 1996.

MacIntyre NR, Fulkerson WJ. The acute/adult respiratory distress syndrome. Burton G and Hodgkin JH (ed). Respiratory Care (4th edition). JB Lippincott, Philadelphia, 1996.

Fulkerson WJ, MacIntyre NR. Pathogenesis and Treatment of the Adult Respiratory Distress Syndrome Arch. Int. Med. 1996; 156:29-38.

MacIntyre NR. Strategies to minimize alveolar stretch injury. Vincent, JL (ed.). Yearbook Of Emergency and Intensive Care Medicine. Springer, Berlin, 1996.

MacIntyre NR. New Modes of Mechanical Ventilation. Clinics in Chest Medicine 1996; 17:411-421.

Abou-Shala N, MacIntyre NR. Emergent management of acute asthma. Med. Clinics of North America 1996; 80:677-699.

MacIntyre NR. Principles of mechanical ventilation. Celli B, Crapo J (eds.). Textbook of Pulmonary Disease. Little Brown, Boston, 1997.

MacIntyre NR. Levels of monitoring. Tobin M (ed.). Principles and Practice of Intensive Care Monitoring. McGraw-Hill, New York, 1997.

MacIntyre NR. Diffusing capacity of the lung for carbon monoxide. Resp. Care Clinics of North America 1997; 3:221-233.

American Association for Respiratory Care Consensus Group (NR MacIntyre, Chairman). Non invasive mechanical ventilation. Resp. Care 1997; 42:364-369.

MacIntyre NR. Patient-ventilator interactions, dys-synchrony and imposed loads. Marini J and Slutsky A. Physiological Basis of Ventilatory Support. Marcel Dekker, New York, 1997.

Crouch, R, MacIntyre NR. Pulmonary rehabilitation of the patient with non-obstructive lung disease.

Resp. Care Clinics of North America 1998; 4:59-70.

MacIntyre NR. Strategies to minimize alveolar stretch injury during mechanical ventilation. in Gullo A (ed). Anesthesia, Pain, Intensive Care and Emergency Medicine. Springer-Verlag Italia. Milan 1999.

Non-Invasive Positive Pressure Ventilation Consensus Group (NR MacIntyre – member). Clinical indications for NIPPV in chronic respiratory failure. Chest 1999; 116: 521-534.

MacIntyre, NR. Ventilator management. Murray J, Nadel J, Mason R, Boushey H (ed). Textbook of Respiratory Medicine. WB Saunders. Philadelphia 2000.

MacIntyre, NR. Patient ventilator interactions. Grenvik, A. (ed). Textbook of Critical Care Medicine. WB Saunders, Philadelphia 2000.

MacIntyre, NR. Weaning from ventilatory support. Grenvik, A (ed). Textbook of Critical Care Medicine. WB Saunders, Philadelphia 2000.

MacIntyre NR. Monitoring and alarms. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

MacIntyre NR. Respiratory system mechanics. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

MacIntyre NR. Alveolar capillary gas transport. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

MacIntyre NR. Patient – ventilator interactions. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

MacIntyre NR. Mechanical ventilation strategies for parenchymal lung injury. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

MacIntyre NR. Mechanical ventilation strategies for obstructive airway disease. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

MacIntyre NR. Weaning mechanical ventilatory support. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

MacIntyre NR. Long term mechanical ventilatory support. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

MacIntyre NR. Evaluating innovations in mechanical ventilation. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

MacIntyre NR. High frequency ventilation. MacIntyre NR and Branson R (ed). Mechanical Ventilation. WB Saunders. Philadelphia 2000.

Brown CD, MacIntyre NR. COPD exacerbations. JCOM. 2000; 7: 43-49.

American Respiratory Care Foundation Consensus Group (MacIntyre, NR - co-chair). Aerosol delivery systems consensus statement. Resp Care 2000; 45: 589-96.

MacIntyre NR. The patient with ventilator dys-synchrony. Stoller J (ed). The Respiratory Care Patient. WB Saunders, Philadelphia 2000.

American Thoracic Society Committee on Pulmonary Function Standards (MacIntyre, NR – member). Guidelines for methacholine and exercise challenge testing – 1999. Am J of Resp & Crit Care Med. 2000; 161:309-29.

MacIntyre, NR. Long term oxygen therapy conference summary. Resp Care 2000; 43: 237-245.

Hess, DR, MacIntyre NR. Tracheal gas insufflation: overcoming obstacles to clinical implementation. Resp Care 2001; 46: 198-9.

MacIntyre, NR. Innovations in mechanical ventilation: what are (and what should be) the drivers? Resp Care 2001; 46: 267-72.

MacIntyre NR. Evolution of the modern mechanical ventilator. Hill N and Levy M. (ed). Ventilator Management Strategies for Critical Care. Marcel Dekker, New York 2000.

MacIntyre, NR. Intra-tracheal aerosol delivery in intubated patients. in Vincent, JL (ed). Yearbook of Intensive Care and Emergency Medicine. Springer, Berlin, 2001.

ACCP/SCCM/AARC Task Force (MacIntyre NR chairman). Evidence based guidelines for weaning and discontinuing mechanical ventilation. Chest 2001; 120 (6 Suppl): 375S-95S.

MacIntyre NR. High frequency jet ventilation. Resp Care Clin North Amer 2001; 7: 599-610.

MacIntyre NR. COPD management: the evidence base. Resp Care 2001; 46: 1294-1303.

MacIntyre NR. Invasive mechanical ventilation in the adult: conference summary. Resp Care 2002; 47: 508-518.

MacIntyre NR. Basic Principles and New Modes of Mechanical Ventilation. In Murray MJ, Coursin DB, Pearl RG, Prough DS. (eds.) Critical Care Medicine – Perioperative Management. Lipincott Williams and Wilkins, Philadelphia, 2002.

MacIntyre NR Assist Control Mechanical Ventilatory Support. In Kochanik, Abraham, Vincent (ed).

Critical Care. Elsevier Publ, Philadelphia, 2003.

MacIntyre NR. Novel approaches to monitoring mechanical ventilatory support. In Slutsky AS, Brochard L (eds.). Mechanical Ventilation. Springer, 2004

MacIntyre NR, Mechanical Ventilatory Support. In Crapo JD, Glassroth J, Karlinsky JB, King TE (eds). Baum's Textbook of Pulmonary Disease. Lipincott Williams and Wilkins, Philadelphia, 2004.

MacIntyre, NR. Recent innovations in mechanical ventilatory support. in Vincent, JL (ed). Yearbook of Intensive Care and Emergency Medicine. Springer, Berlin, 2003.

MacIntyre, NR. Principles of mechanical ventilation. Murray J, Nadel J, Mason R, Boushey H (ed). Textbook of Respiratory Medicine. WB Saunders. Philadelphia 2004.

MacIntyre NR. Weaning and withdrawing mechanical ventilatory support. in Vincent, JL (ed). Yearbook of Intensive Care and Emergency Medicine. Springer, Berlin, 2004.

MacIntyre NR. Setting the PEEP-FiO₂ in ALI/ARDS. Resp Care Clin North Amer. 2004; (in press)

MacIntyre NR. The best tidal volume for managing ALI/ARDS. Resp Care Clin North Amer. 2004; (in press)

Editorials, Forwards and Letters

MacIntyre NR. Pressure support ventilation. Resp. Care 1986; 31:189-190.

MacIntyre NR. Pressure support in perspective. Resp. Care 1989; 34:134-135.

MacIntyre NR. Oxygen uptake and mechanical ventilation. Chest 1989; 96:446-447.

MacIntyre NR. Sensitivity and responsiveness of assist triggers. Crit. Care Med. 1990; 18:581-582.

MacIntyre NR. ICN spokesmen emphasize Virazole (ribavirin) efficacy and safety. Resp. Care 1991; 36:1439-41.

MacIntyre NR. Building consensus in mechanical ventilatory support. Chest 1993; 104:334-335.

MacIntyre NR. We can't afford not to use all the means at our disposal in the ICU. AARC Times 1993; 12:53-54.

MacIntyre NR. Volume versus pressure targeted ventilatory support. Crit. Care Med. 1994; 22:4-5.

MacIntyre NR. Building consensus on the use of mechanical ventilation. Chest 1993; 104:334-335, Chest 1994; 105:648.

MacIntyre NR. Patient ventilator synchrony. Am. J Resp. Crit. Care Med. 1995; 151: 254-255.

MacIntyre NR. Ventilatory muscles and mechanical ventilatory support. Crit. Care Med. 1997; 25: 1106-1107.

MacIntyre NR. Foreward in Mazzagatti FA, Lebowitz LC, Schlesinger NW. Respiratory Care Pearls. Hawley and Belfus, Philadelphia, 1997.

MacIntyre NR. Foreward in Chang DW. Clinical Applications of Mechanical Ventilation. Delmar, Albany, NY, 1997.

MacIntyre NR. High frequency ventilation. Crit Care Med 1998; 26: 1955-1956.

MacIntyre NR. Issues in ventilator weaning. Chest 1999; 115: 1215-1216.

MacIntyre NR. Of Goldilocks and ventilatory muscle loading. Crit. Care Med. 2000; 28:588-9.

MacIntyre, NR, Hess DR. Tracheal gas insufflation. Resp Care 2001; 46:118.

MacIntyre NR. Bringing scientific evidence to the ventilator weaning and discontinuation process; evidence based practice guidelines. Resp Care 2002; 47: 29-30.

Dolovich MB. MacIntyre NR. Smaldone GC. Foreword. Liquid nebulization: emerging technologies. Respiratory Care. 2002; 47:1256.

MacIntyre NR. Foreword. New horizons in respiratory care: pulmonary function testing: updates and answers. Respiratory Care. 2003; 48:763.

MacIntyre NR. The AARC and NLHEP – assuring quality in spirometry. Resp Care. 2004; 49: 1-2.

MacIntyre NR. Forward. Managing respiratory care services. Resp Care Clinics North Amer. 2004; (in press)

Books and Monographs

MacIntyre NR, Oberman A, Harlan WR, Mitchell RE, Graybiel A. The 1000 aviator project: 1969-71 follow-up program with distribution and intercorrelations of selected variables Monograph 24, Naval Aerospace Medical Research Laboratory, Pensacola, Florida, 1979.

MacIntyre NR. Jet ventilation in the adult with breathing rates up to 150 breaths per minute. Valley Publishing Co., Riverside, CA, 1985.

MacIntyre NR, Hagus CK. Graphical analysis of pressure, flow and volume during mechanical

ventilation. Valley Publishing Co., Riverside, CA, 1987, 1989.

MacIntyre NR, Fluck R (ed.). Pulmonary Function Testing. Respiratory Care 34, Numbers 6 and 7, 1989.

MacIntyre NR (ed.). Lateral rotational therapy; a roundtable discussion. Health Education Technologies, New York, 1990.

Fulkerson WF, MacIntyre NR (ed). Complications of Mechanical Ventilation. JB Lippincott, Philadelphia, 1991.

MacIntyre NR, Branson R (ed). Ventilator Patient Management with Pulmonary Mechanics Monitoring. Bicore, Irvine, CA, 1993.

Dantzker D, MacIntyre NR, Bakow E (ed.). Comprehensive Respiratory Care. WB Saunders, Philadelphia, 1994.

Kussin P, MacIntyre NR (ed.). Adult Asthma. WB Saunders, Philadelphia 1995.

MacIntyre NR, Branson RD (ed). Mechanical Ventilation. WB Saunders, Philadelphia, 2000.

MacIntyre NR. Tracheal and Esophageal Pressure Monitoring. Thermo Resp Group Clinical Publications, Palm Springs CA, 2000.

MacIntyre NR, Graphical Analysis of Mechanical Ventilation. Thermo Resp Group Clinical Publications, Palm Springs CA, 2000.

Duke University Evidence-based Practice Center (MacIntyre, NR - investigator). Management of Acute Exacerbations of Chronic Obstructive Pulmonary Disease. Evidence report/technology assessment # 19. AHRQ publication 01-E003, March 2001.

Hess DR, MacIntyre NR, Mishoe SC, Galvin WF, Adams AB, Saposnick AB (editors). Respiratory Care: Principles and Practice. WB Saunders, Philadelphia, 2002.

MacIntyre NR, Branson RD (ed). Recent Controversies in Respiratory Care. Resp Care Clinics North Amer. Elsevier, Philadelphia, 2004.

Abstracts

Kunkler JR, MacIntyre NR, Mitchell RE, Oberman A, Harlan W, Graybiel A. Long term follow-up of exercise electrocardiograms in healthy aviators: 8-19 year follow-up of the Navy's "1000 Aviators". Aerospace Medical Association 49th Annual Meeting Preprints, 1978.

Gessler JA, MacIntyre NR, Mitchell RE, Oberman A, Harlan W, Graybiel A. Long term patterns of

alcohol use in aviators: 29 year follow-up of the Navy's "1000 Aviators". Aerospace Medical Association 49th Annual Meeting Preprints, 1978.

MacIntyre NR, Oberman A, Mitchell RE, Graybiel A. Lung volume aging patterns: 29 year follow-up of the U.S. Navy's "1000 Aviators" project. Am. Rev. Resp. Dis. 1978; 117:248.

MacIntyre NR, Stokes DL, Nadel JA. Effects of position and exercise on the within breath analysis of pulmonary diffusing capacity. Am. Rev. Resp. Dis. 1980; 121:374.

MacIntyre NR, Nadel JA. Regional diffusing capacity/alveolar volume in apical and basal segments of normal lungs. Physiologist 1980; 23:118.

MacIntyre NR, McDonough J, Schuler F, Coleman RE. Regional lung function during high frequency ventilation. Am. Rev. Resp. Dis. 1982; 125:232.

MacIntyre NR, Friedman M. Lung uptake of C¹⁸O during high frequency oscillation. Physiologist 1982; 25:283.

McDonough JA, MacIntyre NR. Gas distribution during high frequency ventilation. Resp. Care 1982; 27:1240.

MacIntyre NR, Friedman M. Soluble gas uptake in the lung during high frequency oscillation. Am. Rev. Resp. Dis. 1983; 127:238.

Deitz JL, MacIntyre NR, Leatherman NE. Gas transport and ventilation distribution as a function of tidal volume and breathing frequency in a mechanical lung model. Physiologist 1983; 26:A69.

MacIntyre NR, Deitz JL, Nagy RS, Rankin JS, Tyson GS. The cardiovascular effects of airway pressure during conventional positive pressure ventilation and high frequency jet ventilation in man. Am. Rev. Resp. Dis. 1984; 129:A99.

MacIntyre NR. Pulmonary mechanics and gas exchange during pressure support ventilation. Chest 1984; 86:285.

Lawlor B, MacIntyre NR. Mechanisms of gas transport during high frequency jet ventilation. Resp. Care 1984; 29:1038-1039.

Nagy R, MacIntyre NR. Airway pressure and tidal volume using pressure-supported spontaneous ventilation. Resp. Care 1984; 29:1051.

Deitz JL, Leatherman NE, MacIntyre NR. The effect of bias flow rate on gas exchange during high frequency oscillation. Am. Rev. Resp. Dis. 1985; 131:A311.

Ramage JE, MacIntyre NR. Rest and exercise cardiopulmonary performance assessed by insoluble and

soluble gas analysis during a single exhalation. Am. Rev. Resp. Dis. 1985; 131:A306.

Follett JV, MacIntyre NR, Deitz JL, Lawlor BR. Gas exchange during high frequency ventilation at 100 breaths per minute. Chest 1985; 86:A.

Nagy RS, MacIntyre NR. Patient work during pressure support ventilation. Resp. Care 1985; 85:860.

Ramage JE, Knapp M, MacIntyre NR, Crapo JD. Early indicators of hyperoxic lung injury in baboons. Am. Rev. Resp. Dis. 1986; 133:A111.

Ramage JE, Johnson SM, MacIntyre NR, Bell DY, Piantadosi CA. Cardiopulmonary responses to exercise in sarcoidosis. Chest 1986; 89 (Supplement):493S.

Nagy RS, MacIntyre NR. Respiratory function and sputum production after 72 hours of use of a heat and moisture exchange humidifier. Resp. Care 1986; 31:930.

MacIntyre NR, Cray L. Cardiovascular responses to positive pressure mechanical ventilatory support synchronized to electrical systole. Chest 1987; 91(Supplement).

McConnell RR, MacIntyre NR. The use of pressure support ventilation with a phrenic nerve stimulator. Resp. Care 1987; 32:915-918.

Ho LI, MacIntyre NR. Pressure supported breaths: ventilatory effects of breath initiation and breath termination design characteristics. Crit. Care Med. 1989; 17:526.

Ho LI, MacIntyre NR. Physiologic determinants of ventilator dependence. Chest 1989; 93(Supplement):300S.

Bullard AG, MacIntyre NR. Mechanisms of exercise limitation in interstitial lung disease and predictive parameters from pulmonary function tests. Am. Rev. Resp. Dis. 1990; 141:A828.

MacIntyre NR, Schein RM, Hannigan JF, Salsburg DS, Gorelick KJ. E5 antibody enhances resolution of multiorgan failure in gram negative sepsis. Chest 1990; 98:135S.

Gorelick K, Schein RMH, MacIntyre NR et al. Multicenter trial of antiendotoxin antibody E5 in the treatment of gram negative sepsis. Crit. Care Med. 1990.

MacIntyre NR et al. E5 antibody improves outcome from multiorgan failure in survivors of gram negative sepsis. Crit. Care Med. 1991; S14.

Chiang A, Steinfeld A, MacIntyre NR. Airway pressure release ventilation as a partial ventilatory support mode. Chest 1991; 100:S143.

Huang YC, Lawlor BR, MacIntyre NR. Real time CO analysis improves the measurement of single breath

diffusing capacity. Chest 1991; 100:S96.

Day S, MacIntyre NR. Rapid analysis of exhaled CO₂ to assess endotracheal tube placement. Resp. Care 1991; 36:1256.

Balk RA, Refines D, Iberti TJ, MacIntyre NR, et al. E5 antibody improves outcome from organ failure in septic patients not in refractory shock. Crit. Care Med. 1992;

Huang YC, Helms MJ, MacIntyre NR. Single exhalation pulmonary diffusion capacity and capillary blood flow in normal subjects under sitting, supine and exercise conditions. Am. Rev. Resp. Dis. 1992; 145:A777.

Handshoe DK, Kussin PS, McAllister K, MacIntyre NR. Management of ARDS using PCIRV vs VCV. Am. Rev. Resp. Dis. 1992;145:A522.

Pattishall E, Williams J, MacIntyre NR, et al. The effect of exposure to intermittent vs continuous nebulization of 0.6% saline in patients with ARDS. Am. Rev. Resp. Dis. 1992;145:A79.

Emery CF, Hauck ER, Leatherman NE, MacIntyre NR. Age differences in psychological functioning among mildly impaired COPD patients in exercise rehabilitation. Gerontological Society of America. 1992

Emery CF, Hauck ER, Leatherman NE, MacIntyre NR. Physiological predictors of psychological well being among COPD patients in an exercise rehabilitation program. J Cardiopulm Rehab. 1992; 12.

Day S, Griffis M, MacIntyre NR, Hidinger C, Robbins P, Whitfield S. Routine nasal mask pressure support ventilation in recently extubated postoperative patients. Resp. Care 1992; 37:1310.

Armstrong B, MacIntyre NR. Prolonged-inspiratory-time ventilation as an alternative to positive end-expiratory pressure to increase mean alveolar pressure and PaO₂. Resp. Care 1992; 37:1310-1313.

Rinaldo S, MacIntyre NR. Continuous nebulization of albuterol sulfate for patients experiencing acute airway obstruction. Resp. Care 1992; 37:1370.

Lasky JA, Huang YC, Browning IB, MacIntyre NR, Tapson VF. Resting and exercise intra breath diffusing capacity in and pulmonary capillary blood flow in adult patients with sickle cell anemia. Am. Rev. Resp. Dis. 1993; 147:A84.

Sane A, McConnell RR, MacIntyre NR. Pressure limited breaths synchronize better with patient ventilatory efforts than flow limited breaths. Am. Rev. Resp. Dis. 1993; 147:A885.

Handshoe D, Kussin P, MacIntyre N, Fulkerson W. Hemodynamic effects of PCIRV and VCV in patients with severe ARDS. Am. Rev. Resp. Dis. 1993; 147:A352.

Samuelson W, Woodward J, Leatherman N, MacIntyre N. Pulmonary rehabilitation of adult CF patients. Cystic Fibrosis Foundation, Oct. 13-16, 1993.

Emery CF, Hauck ER, MacIntyre NR. Perceived control, health knowledge and physical functioning among COPD patients. J. Cardiopulm Rehab 1993; 13.

McConnell RR, MacIntyre NR. Assessing PEEP applied for ventilator dys-synchrony imposed by airflow obstruction. Resp. Care 1993; 38:1243.

McConnell RR, Yetsko D, Sane A, MacIntyre NR. Patient ventilator flow synchrony as a function of ventilator support mode. Resp. Care 1993; 38:1244.

MacIntyre NR, Coleman RE, Schuller FS, Zaccardelli D, Pattishall E. Efficiency of the delivery of aerosolized artificial surfactant to intubated patients with ARDS. Am. Rev. Resp. Dis. 1994; 149:A125.

Cheng KG, McConnell RR, MacIntyre NR. Pressure limited volume cycled breaths improve patient ventilator synchrony. Chest 1994; 106:68S.

Reilly SJ, MacIntyre NR, Huang YC. Distribution of diffusing capacity over mid lung volumes during a single exhalation. Am. J. Resp. Crit. Care Med. 1995; 151:A786.

Niederman MS, MacIntyre N, Barnett R, et al. Lateral rotational therapy as an adjunct in the treatment of nosocomial pneumonia in mechanically ventilated patients. Am. J. Resp. Crit. Care Med. 1995; 151:A669.

Reilly SJ, Huang YC, MacIntyre NR. Methane dilution compared to helium dilution methodology to measure DLCO. Am. J. Resp. Crit. Care Med. 1995; 151:A787.

Day S, McConnell R, Fredericksen H, MacIntyre NR. Comparison of long term use of a hygroscopic condensing humidifier versus heated wire circuit. Resp. Care 1996; 41.

McConnell R, Fredericksen H, Day S, MacIntyre, NR. Evaluation of a battery powered pressure support ventilator. Resp. Care. 1996; 41.

MacIntyre NR, Chen J, McConnell R, Yetsko D, Davies J. A protocol to improve patient - ventilator synchrony reduces the need for sedation. Crit Care Med 1996; 24: A57

MacIntyre NR, Baran G, Schuller F, Day S. A small diameter multilumen catheter for intra - airway generation of therapeutic aerosols. Am. J. Resp. Crit. Care Med. 1996; 154:A.

Reilly SJ, MacIntyre NR, Huang YC. Abnormal regional diffusing capacity during exhalation in obstructive lung disease. Am. J. Resp. Crit. Care Med. 1997; 155:A909.

MacIntyre NR, Baran GT, Schuller F, McConnell R. Aerosol deposition during high frequency oscillatory ventilation using an aerosol generating catheter. Eur. Resp. Soc. 1997;A.

MacIntyre DE, Fredricksen H, McMullan B, MacIntyre NR. Performance of pulsed dose oxygen systems during exercise. J. Cardiopulm. Rehab. 1997; 17.

Brown C, MacIntyre NR, Huang YT. Single exhalation diffusing capacity and pulmonary capillary blood flow at rest and at maximal exercise. Chest 1998; 114.

McConnell R, Yetsko D, Gentile M, MacIntyre NR. Lung model that mimics dynamic airway collapse and PV inflection points. Resp. Care 1998;43:853

McConnell RM, MacIntyre NR. Pressure assist as a form of patient triggered pressure targeted ventilation. Resp. Care 1998;43:853.

MacIntyre D, McMullan B, Crouch R, MacIntyre NR. Pulse oximetry during walking and bicycle exercise. Resp. Care 1998; 43:859.

Faatz JA, MacIntyre NR. Severe methemoglobinemia impairing effective oxygen delivery: a case report. Resp. Care. 1999; 44:1224.

McConnell R, Cappiello J, Umbdenstock J, MacIntyre N. Pressure assist-control on a conventional ventilator adapted for non-invasive mask ventilation. Resp. Care. 1999; 44:1256.

McConnell R, Khoury J, MacIntyre N. Automated low flow systems to measure and plot compliance curves for mechanically ventilated patients. Resp. Care. 1999; 44:1257.

Davies J, McConnell R, Griffiths M, MacIntyre N. The effect of heliox during pressure control ventilation through a fixed resistance. Resp. Care. 1999; 44:1258

Thalman J, McConnell R, Rinaldo-Gallo S, MacIntyre N. Respiratory care practitioner awareness of potentially harmful ventilator settings can improve clinical outcome. Resp. Care. 1999; 44:1267.

Make B, Tolliver R, Christensen P, Karla S, MacIntyre N, Ries A for the NETT Research Group. Pulmonary rehabilitation improves exercise capacity and dyspnea in the National Emphysema Treatment Trial (NETT). Am J Resp Crit Care Med. 2000; 161:A254.

ARDS Network. Recruitment maneuvers. Am J Resp Crit Care Med 2001.

MacIntyre NR III, MacIntyre NR, Crapo RC for the American Thoracic Society Pulmonary Function Lab Registry. Characteristics of pulmonary function laboratories in North America. Am J Resp Crit Care Med 2002.

Plankeel J, MacIntyre NR. Mechanism of limitation predicts rehabilitation outcome in COPD. Am J Resp Crit Care Med 2002.

Gentile MA, Cappiello JL, Yetsko DS, MacIntyre NR. Use of noninvasive positive pressure ventilation

in the emergency room to prevent subsequent intubation : an exceptional case. Respir Care, 2003;48 (11):1102.

Davies JM, Kor AC, Gentile MA, Ahearn GS, MacIntyre NR. The use of a hard board underneath adult patients during high frequency oscillatory ventilation. Respir Care, 2003;48 (11):1110.

Davies JM, Kor AC, Gentile MA, Cheifetz IM, Ahearn GS, MacIntyre NR. High frequency oscillatory ventilation in the adult population: a case series. Respir Care, 2003;48 (11):1110.

Kor AC, Cappiello JC, Gentile MA, Kotani T, MacIntyre NR. Use of noninvasive positive pressure ventilation in the emergency room to prevent endotracheal intubation. Am J Respir Crit Care Med, 2003;167(7):A863.

Kotani T, Gentile MA, Davies JD, Kor AC, Quick GA, Huang YC, Cheifetz IM, MacIntyre NR. Slower inspiratory flow protects lungs during large tidal volume ventilation. Am J Respir Crit Care Med 2003; 67(7):A779.

Kotani T, Gentile MA, Sporn T, Huang YC, Quick GA, Cheifetz IM, MacIntyre NR. Reduced inspiratory flow protects alveolar structure in overdistended lungs. Am J Respir Crit Care Med, 2004;169(7):A784.

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